Dispositions, Conditionals and Auspicious Circumstances

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Abstract.

A number of authors have suggested that a conditional analysis of dispositions must take roughly the following form:

> Thing X is disposed to produce response R to stimulus S just in case, if X were exposed to S *and surrounding circumstances were auspicious*, then X would produce R.

The great challenge is cashing out the relevant notion of 'auspicious circumstances'. I give a general argument which entails that all existing conditional analyses fail, and that there is no satisfactory way to define 'auspicious circumstances' just in terms of S, R, and X. Instead, I argue that the auspicious circumstances C for the manifestation of a disposition constitute a third irreducible element of that disposition, and that to pick out (or to 'individuate') that disposition one must specify C along with S and R. This enables a new conditional analysis of dispositions that gives intuitively satisfying answers in cases that pose problems for other approaches.

1. Introduction.

It is intuitively clear that there is some close link between dispositions and subjunctive conditionals. Suppose I tell you that this substance is poisonous – that it has the disposition to cause illness in people when ingested. From this, you will naturally conclude that if you were to ingest this substance you would (most likely) become ill. Similarly, if I warned you that my new vase would surely break if you struck it, you would conclude that it is fragile – that it is disposed to break when struck.

Such observations suggest that dispositions should be analyzed in terms of the conditionals that they seem to entail, perhaps as follows:

Thing X is disposed to give a response of type R to a stimulus of type S iff, if X were to undergo a stimulus of type S, X would give a response of type R.[1,2]

Unfortunately, this *simple conditional analysis* does not work. For there are many instances in which the circumstances surrounding a thing are such that the thing's dispositions do not match the conditionals which are actually true of it. In cases of *blocking*, a thing somehow fails to produce the response that it is disposed to produce in response to a stimulus it undergoes.[3] For example, a poisonous substance will fail to cause illness when ingested if its antidote is administered quickly enough to block the poison's effects.[4] In cases of *mimicking*, certain conditionals may be true of a thing, even while the thing lacks the dispositions normally linked with those conditionals. For example, a substance which is not poisonous (in any ordinary sense of that term) still might be such that it would cause illness if ingested under certain very strange

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[1] This formulation of the simple conditional analysis is very similar to one considered by Lewis (1997, pg 143).

[2] This paper will focus upon what Prior *et al* (1982) call "surefire dispositions": ones that involve only a single (type of) response. One might wish eventually also to have an account of "probabilistic" dispositions that involve probabilities for multiple (types of) responses. E.g., a fair coin might be said to have a disposition when flipped to produce heads 50% of the time and tails 50% of the time. Surefire dispositions will raise enough puzzles to keep us busy without needing to track the added complexities of probabilistic dispositions. However, the moves we consider regarding surefire dispositions will have obvious analogs in the debate about probabilistic dispositions.

[3] I intend my general term 'blocking' to encompass cases involving 'finkish' losses of dispositions (Martin 1994, Lewis 1997), 'antidotes' (Bird 1998), and 'masking' (Johnston 1992; Fara 2005).

[4] Following much of the literature, I draw upon our intuitive assessment of what conditionals are true in these cases. Some sophisticated accounts of conditionals might deny these intuitive assessments and hence evade these counterexamples. Bonevac et al (2006) discuss constraints such sophisticated accounts would need to meet in order to avoid these counterexamples. Such maneuvering offers little hope to the popular Lewis/Stalnaker account (which analyzes "If P then Q" as roughly "The nearest P-worlds are Q-worlds"). Supposing I already have the antidote in my mouth, then the "nearest" worlds where I ingest the poison will pretty clearly be worlds in which I also ingest the antidote, and hence I would not become ill in those worlds. But this maneuver might offer more hope to other understandings of the conditional. E.g., Asher(1995) and Asher & Morreau (1995) analyze "If P then Q" as roughly "The normal P-worlds are Q-worlds." It's hard to say (and Asher and Morreau offer sadly little guidance) what would be a "normal" world for me to ingest a poison in. I suspect (and selfishly hope) that, at least for some poisons, this would be a world in which the antidote is close at hand, but some fans of an Asher/Morreau conditional analysis might hope that, for every poison I might ingest, antidotes will "normally" not be available, which would prevent antidotes from being a "blocking" counter-example to their version of a conditional analysis. Regardless, my argument in Section 3 will show that even their sort of conditional analysis is wrong.

conditions. A number of papers have put forward a wide variety of blocking and mimicking cases.[5]

These cases illustrate the fact that then even if we would ordinarily say that a thing is disposed to give a particular response to a particular stimulus, that thing might give some different response to that stimulus if the surrounding circumstances are strange enough. Dispositions can be linked to conditionals only given the proviso that surrounding circumstances are, in some sense, *auspicious*.[6] We may add this proviso to the simple conditional analysis, as follows:

> Thing X is disposed to give a response of type R to a stimulus of type S iff, if X were to undergo a stimulus of type S <u>in an auspicious circumstance</u>, then X would give a response of type R.

One great challenge in developing a theory of dispositions is cashing out this notion of 'auspicious circumstances'. This paper reviews various attempts to meet this challenge, shows why they fail, and then proposes a new solution.

This challenge is closely related to a second question: *How may different dispositions be individuated?* Or, equivalently: *What must be specified in order to specify a particular disposition?* There are two general approaches to individuating dispositions, corresponding to two ways of meeting the challenge of analyzing auspicious circumstances.

The *two-parameter approach* holds that, to specify a particular disposition, one may specify just the following two parameters:

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[5] E.g., Johnston (1992), Martin (1994), Lewis (1997), Bird (1998), Fara (2001).
[6] This general idea has been advanced by many authors under various labels other than my "auspicious circumstances." These include Mumford's "ideal conditions" (1998, pp. 88-90), Bird's "normal circumstances" (1998, pp. 233–4), Malzkorn's "normal conditions" (2000, pp. 456–459), Gundersen's "standard conditions" (2002, p. 407), Cross's "background conditions" (2005, p. 324), and Choi's "ordinary conditions" (2009, p. 576).

S – the type of stimulus that the disposition is a disposition to produce a response to, and

R – the type of response that the disposition is a disposition to produce, when exposed to a stimulus of type S.

According to this approach, once S and R have been fully specified, a unique disposition will have been specified: the disposition to produce a response of type R to a stimulus of type S. This is a disposition that certain things will possess at certain times (and presumably that most things will lack at most times). Since, on this view, there is a unique disposition to produce R in response to S,[7] no object can *both possess* a disposition to produce R in response to S *and simultaneously lack* a disposition to produce R in response to S.

When combined with the modified conditional analysis above, the two-parameter approach entails that, since auspicious circumstances for a given object to manifest a given disposition play a crucial role in the *analysans*, they must therefore be fully determined by the parameters in the *analysandum* ("Thing X is disposed to give a response of type R to a stimulus of type S"). Alexander Bird (2007, p. 37) formalizes this by suggesting that there should be a function F(S, R) specifying the auspicious circumstances for each stimulus-response pair. But Bird is unnecessarily restrictive. Since the object X appears alongside S and R in the *analysandum*, fans of the two-parameter approach could, in principle, also include X as an argument to F.[8] For example, one might hold that the auspicious circumstances for an osteoporotic bone X_1 to manifest its disposition to break under a certain shearing force might be different from those for a dry bamboo cane X_2 to manifest that same disposition. (One might

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[7] Where I can do so without confusion, I will abbreviate "produce a response of type R" as "produce R". I will do similarly for other variables.
[8] Many formulations of conditional analyses also include time *t*. For simplicity, I have omitted that, as issues about object persistence through time are largely orthogonal to the present topic. However, if one does include *t* in the analysandum, then *t* should also be fair game as an argument to F. This would allow that the auspicious circumstances for a given object to display a given disposition might change over time.

involve being encased in living tissue; the other not.)[9] And in practice, many existing proposals actually do give X a role in determining auspicious circumstances. For example, Michael Fara (2005) holds that the auspicious circumstances for X to manifest the disposition to R in response to S are those which are typical for X to receive S. Hence, contra Bird, two-parameter conditional analyses might hold that auspicious circumstances for X to display R in response to S are determined by a three-argument function F(S, R, X). This gives these analyses more space than Bird allowed them, but it will turn out that this extra space still isn't enough.

In contrast, the *three-parameter approach* holds that a full specification of S and R is not enough to specify a unique disposition. In addition, a third parameter is needed:

> *C* – the type of surrounding circumstance that is auspicious for the disposition's becoming manifest.

Unlike the two-parameter approach, this approach allows that there may be two distinct dispositions, with distinct auspicious circumstances, to produce a response of type R to a stimulus of type S. In fact, a single object could *both possess* one disposition to R in response to S (with auspicious circumstance C_1) *and simultaneously lack* a distinct disposition to R in response to S (with auspicious circumstance C_2). We'll consider a plausible example of this sort in section 3. This approach holds that the auspicious circumstances for X to manifest a particular disposition are not fully determined by any function F(S, R, X) – instead auspicious circumstances constitute a third irreducible component of a disposition, alongside S and R.

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[9] Some versions of a two-parameter approach might even allow that auspicious circumstances for manifesting a particular disposition might differ even for *duplicate* objects found in different circumstances (e.g., if the natives of two islands have different diets, it could be that auspicious circumstances for a mushroom on one island to manifest poisonousness are quite different from auspicious circumstances for a duplicate mushroom on the other island to manifest poisonousness). However, allowing that the auspicious circumstances for an object to manifest a disposition depend in part upon features extrinsic to that object (while accepting the modified conditional analysis proposed above) leads to the conclusion that dispositions are extrinsic properties of objects, a conclusion that many theorists oppose – see Section 6 below.

If the two-parameter approach could be made to work, it might be preferable for reasons of parsimony. However, I will argue, no such approach can work. I will first present problems with various two-parameter conditional analyses that have been suggested, and then offer general considerations that suggest that *no* two-parameter approach can work. Then I will articulate and defend the three-parameter conditional analysis that I favor, and show how it can solve the problems that plagued two-parameter analyses.

2. Two-Parameter Conditional Analyses.

There are many existing two-parameter conditional analyses, corresponding to different possible ways of defining the function F(S, R, X) that determines what sort of auspicious circumstances will occur in the *analysans*. David Lewis (1997) effectively proposes that auspicious circumstances are circumstances in which, for some appropriate time after the application of S, X will retain some intrinsic property that, when combined with S, would be a complete cause of R in X. Stephen Mumford (1998) offers a sophisticated proposal from which one might extract the much simpler proposal that auspicious circumstances are ones that are, in some sense, ideal for X to produce R. Other views hold that auspicious circumstances for a disposition are ones that are typical for an object to have that disposition (Malzkorn 2000, p. 458), typical for X to receive S (Fara 2005), or typical of the cases where S leads to R (Choi 2009, p. 576).

I think each of these proposals fails, and I will a give a general argument entailing this in a moment. But it will be useful now to put forward a few interesting cases that prove problematic for at least some two-parameter proposals. These cases may serve as a testing ground for any proposed analysis.

- A caterpillar may undergo significant internal changes as its disposition to become a butterfly becomes manifest, for such internal changes typically are facilitated by what

we take to be auspicious circumstances for caterpillar development (contra Lewis). Caterpillars can have this disposition, even if, sadly, most of them are actually in an inauspicious environment – e.g., with hungry birds zeroing in – that will prevent their normal development (contra Malzkorn).

- A poison may retain its disposition to cause illness, even while it is safely ingested with its antidote, and a fragile glass might retain its fragility even while it fails to break when struck, because it is suspended in thick syrup or because it is simultaneously hit by a carefully constructed shock wave that delicately cancels the shock caused by the striking.[10] (Contra Lewis.)

- If a watchful wizard's intervention causes a glass magically to transmute into rubber when struck, we normally count this internal change as a loss of ('finkish') dispositions, for there are no magical spells in what we normally take to be auspicious circumstances for glass-striking.[11] But if we spend some time in the wizard's tower and grow accustomed to his protective spell-casting, then we might naturally shift to talk about dispositions which *do* include wizardrous circumstances as auspicious. We might even come to say that the wizard's glass makes a great percussion instrument *because of* its disposition to emit a thud – and not to break – when struck. (This is closely related to a case discussed in Section 3; both pose problems for all two-parameter approaches.)

- When we say the burglar alarm is disposed to go off if someone enters through the window, we presume auspicious circumstances in which the alarm continues to receive electricity – even if, *typically*, people enter through the window only after first cutting the power (contra Fara[12]). Similarly, we don't say the burglar alarm is disposed to remain silent in response to someone's entering through the window – even if it *would* remain silent in the sorts of circumstances (power having been cut) that hold in the majority of occasions where alarms have remained silent when people have entered through windows (contra Choi).

The preceding examples pose problems for existing two-parameter analyses. It may be that some of these analyses could be tweaked to handle some of these counterexamples. Rather than considering such maneuvers here, I will proceed to offer a general argument for thinking that even tweaked two-parameter analyses are bound to fail.

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[10] My syrup example is quite similar to a case dating back at least as far as Armstrong (1973) involving packing materials stuffed around and inside the glass. A canceling shock-wave is proposed by Bird (1998), who poses similar objections against Lewis and considers potential responses.

[11] This is a case that motivates Lewis' (1997) proposal.

[12] More carefully: on Fara's account, "This alarm is disposed to go off when someone enters through the window" gets cashed out as, "In virtue of some of its intrinsic properties, this alarm (habitually) goes off when someone enters through the window." But it may be that, due to the electronic proficiency of local criminals, the alarm doesn't (habitually) go off when people enter through the window, even though it clearly is now *disposed to* do just that.

3. The Need for a Third Parameter.

Let us consider a case, adapted from Michael Fara (2005). Packers have encased a delicate vase in foam, ensuring that situations in which it is struck are ones in which it doesn't break. The packers say, "Since this vase is disposed to break when struck, it is good that we have protected it." A scrupulous vandal repeatedly attempts to break the encased vase by striking it. (Her scruples keep her from removing the foam or employing more destructive means.) After many failed attempts, the frustrated vandal might exclaim, "This vase is *not* disposed to break when struck!" According to Fara, the frustrated vandal's utterance is true, even though, had the packers uttered the same string of words, they would have spoken falsely. Hence, Fara concludes, disposition-ascriptions must be at least somewhat context-dependent. Two similar-sounding disposition-ascriptions, each spoken of the same thing at the same time, might have different truth values.[13]

In the exclamations above, it's clear that the packer is ascribing a *disposition* to the vase, and that the vandal is denying that the vase has a *disposition*. Since both are speaking truths, the packer must be ascribing to the vase a *different* disposition from the one which the vandal is denying. Both dispositions clearly must involve breaking in response to striking – this is made explicit by their words "disposed to break when struck." The most apparent difference between these two dispositions is that they involve different auspicious circumstances. The packer ascribes to the vase a disposition whose auspicious circumstances *do not include* cases where the vase is protectively encased, whereas the vandal denies that the vase has a disposition whose auspicious circumstances *do include* cases where it is protectively encased.

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[13] This does not mean that dispositions *themselves* are context-dependent. It would be very strange indeed if *what dispositions my vase actually has* changes in tandem with changes in conversational context – and this would be a flagrant violation of the commonly accepted claim that dispositions are intrinsic (see Section 6 below).

Each of these is a disposition to break in response to being struck; yet these are different dispositions with different auspicious circumstances. What is to account for these differences? There needn't be any relevant difference in what stimulus S or what response R the packer and vandal have in mind – they might agree down to the finest details regarding what counts as *striking* and what counts as *breaking*.[14] There also needn't be anything about the vase X or its surrounding circumstances that forces us to consider one type of auspicious circumstances rather than the other, for the packer and the vandal might know everything there is to know about these, and yet talk about different dispositions with different auspicious circumstances. Hence, we must reject any 'two-parameter' view that attempts to individuate dispositions just on the basis of S and R.

Since a single vase X may have one disposition to R in response to S (in one sort of auspicious circumstance) and simultaneously lack another disposition to R in response to S (in a different sort of auspicious circumstance), we must also reject any two-parameter conditional analysis (like those surveyed in Section 2) that attempts to show how auspicious circumstances may be determined by some function F(S, R, X). This result applies even to sophisticated understandings of the conditional, like Asher & Morreau's normality conditionals (mentioned in note 4 above) and the other possible understandings surveyed in abstract by Bonevac et al (2006). Each proposed account of conditionals provides a *single* answer to the question: "If the vase were struck, would it break?" In contrast, the packer/vandal case shows that a conditional account of dispositions effectively needs there to be *two* answers to this question: "Yes, it would break if struck (in the sort of circumstance that concerns the packer)" and also "No, it wouldn't break if struck (in the sort of circumstance that concerns the vandal)." The solution to this

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[14] One might suspect that in most actual cases, it will turn out that people actually have some sort of subtle disagreement about what sort of stimulus or response is relevant. However, all I need is one possible example where they do have exactly the same stimulus and response in mind. Perfect agreement may be exceedingly rare in actuality, but as long as it is possible, that's enough for my argument.

problem can't be *just* to adopt some more sophisticated single-answer conditional – instead a conditional account must somehow allow the different parenthetically mentioned circumstances to enter into the respective conditionals, thereby yielding different answers for packer and vandal. I will propose precisely this in a moment, but my proposal will hinge upon how we individuate dispositions, the topic to which we now turn.

4. Auspicious Circumstances as the Third Parameter.

We have just seen that, to fully specify a particular disposition, we need to specify some third parameter in addition to S and R. What should this third parameter be? One natural suggestion is that this third parameter is (C) the type of circumstances which are auspicious for the disposition in question. The packer and the vandal have in mind the same S and the same R, but they have in mind different C's and hence they have in mind different dispositions. On this suggestion, the specification of a disposition really involves three distinct parameters. A technically complete disposition-ascription should take the following form (with braces used to indicate the distinct parameters):

My proposal: Thing X is disposed to {R} in response to {S} in {C}.

But, one might object, are there not two plausible alternatives available? One alternative would be to insist that a technically complete disposition-ascription must involve a complex stimulus which includes a (normally quite tacit) specification of auspicious circumstances within it. This would yield disposition-ascriptions with the following logical form.

Alternative #1: Thing X is disposed to {R} in response to {S and C}.[15]

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[15] Choi proposes a version of Alternative #1 which takes the complex stimulus for fragility to be "being struck under the ordinary circumstances for fragility" (Choi 2009, p. 576).

Alternatively, one might think that a technically complete disposition-ascription should involve a complex conditional *response*:

> **Alternative #2:** Thing X is disposed to {R if C} in response to {S}.

These alternatives may technically count as two-parameter proposals,[16] but they are much closer in spirit to my three-parameter proposal than they are to existing two-parameter proposals. For existing two-parameter proposals have attempted to understand S and R in traditional narrow ways (e.g., as striking and breaking) and have spelled out some function F(S, R, X) to derive the auspicious circumstances for an object X to manifest a given disposition from that disposition's characteristic stimulus and response (both narrowly construed), together with facts about X and its surroundings. (E.g., for Fara, these auspicious circumstances amount to those which would be typical for X to receive S.) These traditional approaches have taken auspicious circumstances C to be quite independent from what they call "stimuli" and "responses" and to be quite dependent upon the particular features of X and/or the surrounding world. In contrast, alternatives #1 and #2 instead view C as something we could simply unpack out of a full specification of a stimulus or a response.

So these two alternatives depart significantly from the spirit of existing two-parameter proposals. In contrast, these alternatives agree with my three-parameter proposal on the points that are most important. They agree that auspicious circumstances (C) must *somehow* be specified within the parameters of a disposition-ascription, and that these are often much less explicitly specified than are the stimuli (S) and responses (R) that we normally mention in

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[16] In theory, one could take *any* n-parameter proposal involving parameters $P_1, P_2, \ldots P_n$ and propose a "one-parameter alternative" that takes the ordered n-tuple $< P_1, P_2, \ldots P_n >$ as its "single" parameter, and then unpacks $P_1, P_2, \ldots P_n$ out of this n-tuple so that they can play distinct roles in the analysans. This "alternative" might, in some technical sense, be a one-parameter proposal. But there is another good sense in which this "alternative" is really just an n-parameter proposal trickily disguised. As we'll see in a moment, I think Alternatives #1 and #2 are similarly just trickily disguised version of my own three-parameter proposal.

specifying dispositions. So long as we admit all of this, it matters little if we keep C separate, or lump it in implicitly with the more explicit S or with the more explicit R. To a large extent, this is just so much bookkeeping, and not really a substantial debate.

Alexander Bird (1998, pp 232-3) considers a version of my proposal and acknowledges that it and Alternative #1 are mere bookkeeping variants. Still, Bird favors Alternative #1, as he thinks that the characteristic stimuli for the dispositions we typically refer to must be *somewhat* more complex than our brief explicit characterizations of those stimuli, so (in for a penny, in for a pound) he thinks we might as well also bundle into these stimuli all the further complexities required to specify auspicious circumstances. In contrast, I think philosophical progress is typically made, not by hastily consolidating little unsolved problems into big unsolved problems, but instead by addressing the littler problems on their own. So, my own bookkeeping preference is to keep distinct notions like S, R, and C on equal footing unless and until we find reasons to lump certain ones of them together.[17]

One might wonder how many more parameters I want, in addition to S, R, and C. Elizabeth Prior (1985) argues that covert dispositional predicates like 'fragile' or 'soluble' include hidden argument places, not just for surrounding circumstances, but also for many other factors like the force of striking or the liquid something might be immersed in. Why not include these other factors as further parameters in my account of dispositions? The main problem is that

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[17] In a later book, Bird (2007, pp. 36-39) argues that a conditional analysis of covert dispositional locutions (like "is fragile") might be defended from various counterexamples by holding that these covert locutions are best translated into overt dispositional locutions involving complex stimuli as in Alternative #1 (e.g., "is disposed to break if *struck when not encased in foam*"), rather than the relatively simple stimuli ("is disposed to break if *struck*") they've traditionally been taken to involve. I agree that the mapping from covert dispositional locutions to overt ones might be quite complex and context-sensitive. E.g., I think the sort of stimulus that is typically involved in talk of "fragile vases" is quite different from that involved in talk of "fragile parchment", and both are quite different from that involved in talk of "fragile peace accords". However, these complexities are of no help in response to cases like those in sections 2 and 3, as these cases hinged upon no covert dispositional locutions, but only overt ones like "This alarm is disposed to go off if someone enters through the window" or "This vase is disposed to break if struck." So, contra Bird, I think the fan of conditional analyses can make little headway by attending to the complexities in translating from covert to overt dispositional locutions. Instead, the pressing philosophical problem is in determining how auspicious circumstances are determined even in overt dispositional locutions.

these other factors are of no relevance to most dispositions. E.g., most dispositions don't involve immersing things in liquids, so a liquid-of-immersion parameter would be nonsensical for most dispositions. Since these other factors would be irrelevant or even nonsensical for most dispositions, I wouldn't give them central billing in a general account of the nature of dispositions. Instead, I think the force of striking and the liquid of immersion *really should* be lumped in with the specification of the stimuli for the dispositions referred to in ordinary attributions of 'fragility' or 'solubility'.[18] In contrast, auspicious circumstances are relevant to virtually all dispositions and have been treated by many theorists as conceptually distinct from both stimulus and response, so I think there is good reason to treat C as an independent third parameter, even while I'm hesitant to countenance any further parameters.

5. A New Conditional Analysis.

Now that we've seen that a full specification of a disposition requires a specification of its auspicious circumstances, we may utilize this fact in an analysis linking dispositions to subjunctive conditionals. Rather than seeking to derive auspicious circumstances from something else as two-parameter approaches had attempted to do, we may instead take a specification of them to be included in the specification of the dispositions we wish to analyze. Here is a first attempt at such an analysis. For reasons that will soon become apparent, I call this my Extrinsic Proposal:

> **Extrinsic Proposal:** Thing X is disposed to give a response of type R to a stimulus of type S <u>in a circumstance of type C</u>, just in case, if X were exposed to a stimulus of type *S* in a circumstance of type C, then it would give a response of type R.

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[18] I am not opposed, however, to holding that the *word* 'fragility' involves a hidden contextual parameter that specifies force of striking. I would then say that fragility *simpliciter* is not a disposition; instead, the term 'fragility' is used, in different contexts, to pick out different dispositions involving (among other things) different degrees of forcefulness in their characteristic stimuli. Insofar as this is all Prior intended to claim, I'm not at odds with her. I am at odds with the Prior-esque view that each such linguistic parameter should correspond to a distinct parameter in our general account of the nature and individuation of dispositions.

What is most unusual about this proposed analysis is that it includes C not just in the *analysans* but also in the *analysandum* (underscored). All parties agree that something like auspicious conditions must appear somehow in the *analysans*. Since traditional conditional analyses did not include auspicious circumstances in the *analysandum*, they were therefore faced with the task of spelling out what counts as auspicious circumstances as a function of the three parameters they did include in the *analysandum*: S, R, and X. As our packer/vandal case showed, these aren't always sufficient to determine which circumstance C is auspicious for the manifestation of a given disposition in a given object. Hence, these traditional analyses were bound to fail. In contrast, the present proposal includes a specification of C in the *analysandum*, so we are free to employ C in the *analysans* without needing to cash it out in terms of S, R, and X.

The main reasons for favoring this analysis are its simplicity and the fact that it works. It explains why we can often warrantedly infer simple conditionals from disposition-ascriptions: we often draw these inferences in circumstances that are auspicious for the dispositions in question, and as long as circumstances are auspicious, X is disposed to produce R in response to S just in case X would produce R if exposed to S. This proposal also explains why inferences to simple conditionals can go awry: when circumstances aren't auspicious, there's no guarantee that something disposed to produce R in response to S (in an auspicious circumstance) actually would produce R if exposed to S (in some other circumstance).

This analysis also gives the right answers in the many cases listed in Section 2 that have posed problems for other approaches:

- Auspicious circumstances for the caterpillar's disposition to mature into a butterfly can produce significant changes within the caterpillar (contra Lewis) and it might be that most caterpillars with this disposition are unlucky and find themselves in woefully inauspicious circumstances (contra Malzkorn).

- A poison may retain its disposition to cause illness if ingested (in an auspicious circumstance), even if harmlessly ingested alongside its antidote (a decidedly inauspicious circumstance for poisoning) – another possibility Lewis did not allow.

- We may attribute dispositions with auspicious circumstances that aren't actually typical for administration of the stimulus, as when we say that a burglar alarm is disposed to go off in response to a window entry, even if the typical window entry occurs in (inauspicious) circumstances where burglars first cut power to any alarms (contra Fara.) Similarly, we needn't say a working alarm is disposed to be silent in response to window entries, even if this alarm, too, would remain silent in the sorts of (inauspicious) circumstances that have obtained in most cases where silence actually has followed window entry (contra Choi).

- A vase can have the disposition to break in response to being struck *in open air*, even while it simultaneously has the disposition to make a thud in response to being struck *in syrup*, *in packing*, or *under a watchful wizard's protection*. If that vase were struck in open air, it would break. If it were struck in one of those other circumstances it would make a thud. My proposal accommodates this variety of dispositions, and the corresponding conditionals; other conditional analyses do not.

6. Conditionals and Intrinsicness

I've said little about how exactly we should understand the subjunctive conditionals employed in conditional analyses of dispositions like my own Extrinsic Proposal. This has been intentional, as I've wanted to avoid getting bogged down in debates about how we should understand conditionals. I think we have a good enough understanding of subjunctive conditionals to be able to tell which conditionals are true in the cases we're considering. For example, in the Packer/Vandal case that has been most central to my argument, all accounts agree that were the vandal to strike an unpacked vase it would break, and that were he instead to strike a packed vase it wouldn't. I am inclined to think the best account for these conditionals is a Lewis/Stalnaker "nearness" account,[19] according to which "X would break if struck" is roughly equivalent to "in the nearest[20] worlds in which X is struck, X breaks." However, I acknowledge

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[19] See Stalnaker (1968), Lewis (1973; 1979).
[20] I am also inclined toward a "no-backtracking" account of "nearness" akin to the one proposed by Lewis (1979), upon which the "nearest" striking worlds are ones that match the events of the actual world up to the time of the

that other theorists might be inclined toward other accounts of subjunctive conditionals instead. For example, an Asher/Morreau "normality" account[21] might accept the above conditionals because, in *the most normal* worlds in which an unpacked vase is struck it breaks, while in *the most normal* worlds in which a packed vase is struck it doesn't. Or, according to Reiter's (1980) "default" account, these conditionals will instead be true because there are safe (but defeasible) default presumptions that packed struck vases won't break, and that unpacked struck vases will. Since most plausible accounts of subjunctive conditionals will (and indeed *must*, to be plausible) match our intuitive assessments of these cases, it should be open to me to embrace whatever account turns out to be best – a topic that can rightly be left for another time.

However, a related problem does demand attention. According to many popular accounts of subjunctive conditionals – including the Lewis/Stalnaker approach I find most plausible – what conditionals are true of X depends not just upon X's intrinsic properties, but also upon X's actual surroundings. For example, what would happen to me were I to walk onto that rickety old bridge depends not just upon my own internal constitution, but also upon how sturdy the bridge is, what gusts of wind are coming, etc... In contrast, many people have held that what dispositions X has *does* depend just upon X's intrinsic properties, and doesn't depend at all upon what surroundings X happens to have. If most conditionals are sensitive to extrinsic factors in a way that dispositions aren't, this will pose serious challenges for any attempt to analyze dispositions in terms of conditionals. In particular, my Extrinsic Proposal was so-named because it allows that a disposition might turn out to be extrinsic if S and C leave open possible ways for surrounding factors to make a difference in whether that disposition gets manifested.

striking, that perhaps include a small miracle to enable the striking to occur, and that subsequently match the *laws* (but not necessarily the ensuing events) of the actual world.
[21] See Asher (1995), Asher & Morreau (1995).

One potential response to this challenge would be to embrace extrinsic dispositions. A number of theorists – including Shoemaker(1980), Fara(2001), and McKitrick(2003) – have argued that we should do just this. (We'll consider one of their most compelling arguments in a moment.) Such theorists can rest satisfied with my Extrinsic Proposal.

However there is also a strong tradition taking dispositions to be intrinsic (at least when laws are held fixed), including Armstrong(1973, p. 12) and Lewis (1997). To me, this seems to be a conceptual truth – anything that could possibly deserve the title of 'disposition' must meet this constraint.[22] It is difficult to *argue* for this claim, just as it is difficult to *argue* that every bachelor is unmarried. Nonetheless, I will attempt three brief arguments.

First, there are unpalatable consequences to accepting the extrinsicness of dispositions. For example, my Extrinsic Proposal would entail that (for at least some not-too-demanding settings of C) bauxite ore on Earth is disposed to be processed into aluminum if discovered – for if it were discovered, it would be so processed – even while intrinsically indistinguishable bauxite ore on Mars does not have this disposition – for even if it were discovered, it would not be so processed. I'm happy saying that *all* bauxite ore has a disposition to be processed into aluminum if discovered in appropriate proximity to a bustling industrial economy, and that *all* bauxite ore also has a disposition to remain unmined, if discovered prohibitively far from such an economy. What I'm *not* happy saying is that some of this ore has "dispositions" lacked by indistinguishable ore in other locations or at other times. To say this is, in my eyes, to fail to be talking about *dispositions*. When a proposed analysis of dispositions says such things, I take this to be a mark against that proposal.

Second, this conclusion can be supported by attending to the ways in which we use disposition-talk, as opposed to *prediction*-talk. We often use both kinds of talk to indicate what

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[22] C.f., Molnar (1999, pg. 3).

sorts of responses to expect from a thing. When we *make predictions about* a thing rather than *attributing dispositions to* the thing, this is often because we take it that the circumstances are temporary and that our prediction needn't *generally* apply to that thing. The reason for using disposition-talk instead of just prediction-talk is that we expect a thing to 'carry its dispositions around with it': when we attribute a disposition to a thing, we expect that thing to continue to have that disposition until some change occurs in the thing to make it lose the disposition, regardless of what happens extrinsic to that thing. This expectation is well-sustained by accounts that take dispositions to be intrinsic – less so by those that don't.[23]

And third, many people[24] have taken an interest in the "categorical bases" of dispositions: the intrinsic non-dispositional properties objects have, in virtue of which they have certain dispositions, and which are causally efficacious in the manifestation of those dispositions. For *intrinsic* dispositions, it makes sense to think of categorical bases in this way. However, for an *extrinsic* disposition, there will be no set of intrinsic properties in virtue of which an object has the disposition – instead it will have the disposition partly in virtue of surrounding circumstantial factors. (E.g., if Earthly bauxite has a disposition lacked by intrinsically indistinguishable Martian bauxite, this difference won't be in virtue of any categorical properties of the Earthly bauxite but instead in virtue of its special surroundings.) If you want to remain open to the possibility of intrinsic categorical bases,[25] then you'll need an account of dispositions upon which dispositions are *intrinsic*.

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[23] This argument is an instance of the general methodology I call Pragmatic Conceptual Analysis. This methodology first identifies useful work we've been calling upon a concept to do (e.g., to identify conditionals that will stably remain true of an object) and then analyzes the concept in a way that would best enable it to continue that work (e.g., in a way that demands that dispositions are intrinsic). I discuss the merits of this general methodology in Fisher (2006).

[24] See, e.g., Armstrong (1968), Prior *et al* (1982), Smith&Stoljar (1998).

[25] For the purposes of this paper, I remain neutral regarding categorical bases. I am open to the idea that there might be some brute dispositions with no categorical bases, and that objects might have other dispositions at least partly in virtue of the brute dispositions that they (or their parts) possess. It is doubtful whether such brute dispositions could be ontologically reduced to conditionals, but a proposed analysis (like my Extrinsic Proposal, or my soon-to-be-

These arguments give compelling reason to seek an account of dispositions according to which dispositions are intrinsic. Exactly which properties should count as intrinsic? That's another thorny debate that is outside the scope of this paper.[26] Instead, I propose to remain neutral, and simply take on board whatever account of intrinsicness turns out to be most relevant to debates about dispositions,[27] and to ask how we can modify the Extrinsic Proposal above, to ensure that dispositions will be intrinsic.

I see two possible ways to do this. First, we might seek an account of conditionals that denies any role to a thing's actual surroundings in determining what conditionals are true of that thing, thereby ensuring that dispositions will be intrinsic. If you're already partial to an account of conditionals that is "strict" in this way,[28] this move would resolve the challenge for you. However, if you're like me in wanting to leave open the possibility that some less "strict" account of conditionals – e.g., a Lewis/Stalnaker account – might turn out to be correct, this option will not be so attractive.

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advanced Intrinsic Proposal) might still state a true biconditional linking brute dispositions to conditionals. (I will return in the concluding section to the question of what sort of analysis of dispositions we should expect.)

[26] Possible notions of intrinsicness include independence from properties instantiated outside the spatial region occupied by an object (Dunn 1990), independence from relations to distinct objects (Francescotti 1999), or dependence upon the qualitative properties that an object shares with all its duplicates (Lewis 1986). It is controversial which of these general notions captures "the" meaning of 'intrinsic', and it is also controversial what the best formal way of analyzing any of these notions is. Candidate analyses include *naturalness theories* which take (at least a core set of) intrinsic properties to be among some privileged class of 'natural' properties (Lewis 1986), and *combinatorial theories* which take intrinsic properties to be ones that can be freely combined with various particular sorts of extrinsic configurations (Vallentyne 1997, Langton & Lewis 1998, Weatherson 2001, Witner *et al* 2005).

[27] We'll consider one potential threat to my neutrality below: the treatment of *de re* or *haecceitistic* properties, which some accounts take to be intrinsic, even though it's doubtful these properties are of relevance to dispositions.

[28] Perhaps the most plausible account of strict conditionals would be a version of an Asher/Morreau "normality" account which takes "If A then C" to mean "The most normal A-worlds are C-worlds", and which takes "normality" to be an entirely *a priori* matter that does not depend at all upon the actual surroundings of the objects in question. However, I doubt that it's an *a priori* matter, for example, what sorts of circumstances are "normal" (in any ordinary sense of the term) for caterpillar development. Instead, it seems to me, this is determined by the actual ecological circumstances that evolutionarily successful caterpillars have faced. So, insofar as I'm attracted to a "normality" account at all, I'm attracted to an "unstrict" version that allows a role for such external factors in determining what counts as "normal".

So I instead prefer a second option: to modify our Extrinsic Proposal to force it to treat all intrinsic duplicates in like fashion, even if we employ conditionals that are themselves sensitive to extrinsic factors. For this to happen, we must ensure that any conditionals true of X will be just as relevant to the dispositions of intrinsic duplicates of X as they are to the dispositions of X itself. This requires the following underscored modification to the Extrinsic Proposal:

> **Intrinsic Proposal:** Thing X is disposed to give a response of type R to a stimulus of type S in a circumstance of type C, just in case, if X <u>or any intrinsic duplicate of X</u> were exposed to a stimulus of type *S* in a circumstance of type C, then it would give a response of type R.

Like my Extrinsic Proposal, this Intrinsic Proposal embraces my 3-parameter view of dispositions and hence includes the auspicious circumstances C in the *analysandum* as well as the *analysans*. This enables it to continue to provide the same sorts of satisfying solutions to the packer-vandal case and the other cases discussed above.

This Intrinsic Proposal differs only in the (underscored) demand, not only that X would produce R in response to S in C, but also that *any intrinsic duplicate of X* would do so as well. This extra demand makes a difference in cases where some possible duplicate of X – call it X* – receives S in C, but somehow fails to produce R. The easiest way for this to happen would be if there is some difference between X's surroundings and X*'s surroundings that was left unspecified by both C and S, and yet makes a difference to whether or not R will result (as, for example, the presence of nearby miners makes a difference to what happens to bauxite ore when discovered on Earth or Mars). In such a case, the Extrinsic Proposal would attribute a disposition to one duplicate but not the other; whereas the Intrinsic Proposal attributes the disposition to *neither* duplicate.

Since the Intrinsic Proposal builds further demands into its *analysans*, it therefore attributes fewer dispositions than did the Extrinsic Proposal. Intuitively, this is because the

Extrinsic Proposal let a thing's actual surroundings do part of the work of narrowing the circumstances it would need to produce the relevant response in, in order to count as having a disposition. (E.g., on a Lewis/Stalnaker approach, the thing need only produce R in S&C-worlds that are *nearby* the actual world). In contrast, the Intrinsic Proposal effectively requires that this narrowing instead be done entirely with the parameters C and S. This entails that the only dispositions that will be instantiated must have some combination of very specific settings for C, very specific settings for S, and/or very liberal settings for R.

One might worry that this means we'll end up countenancing too few dispositions. For most dispositions, ordinary people seemingly have little hope of specifying C narrowly enough to ensure that *any* duplicate of X in C would produce R in response to S. How then, can we have any hope of ever correctly attributing dispositions to things? My Intrinsic Proposal is actually no worse off here than is any other conditional account, including the Extrinsic Proposal. If any conditional account is correct, there must be *some* way of specifying the circumstances in which a thing needs to be able to manifest a disposition to count as having it. The Extrinsic Proposal did this specification in two stages: (1) by using a somewhat specific C together with (2) further narrowing done by the conditional itself (e.g., on a Lewis-Stalnaker approach, to worlds that are *near* the actual world; or on an Asher/Morreau approach, to worlds that are *normal*). All my Intrinsic Proposal needs to do is to take whatever contribution the conditional might have made to the Extrinsic Proposal, and build this into C itself. For example, if Lewis and Stalnaker are right that the correct further constraint is 'nearness' to actuality, then C need only append an indexical *ceteris paribus* clause: "and otherwise 'near' how things actually are." All accounts are committed to saying that some sort of restriction like this is implicitly built into the semantics of the subjunctive conditional. All I need to do is to say that a similar restriction is built into the semantics of the C-parameter in many ordinary disposition-attributions. If this was good enough

for the goose, it should be good for the gander, so there's no special reason to worry that the Intrinsic Proposal will attribute so few dispositions that ordinary disposition-attributions will turn out to be false.

Let us now consider another potential concern: dispositions that involve particular individuals. It is controversial whether there are *de re* or *haecceitistic* properties possessed only by certain individuals but not their qualitative duplicates. For people who believe there are such properties, it is also controversial whether these properties should count as intrinsic or extrinsic.[29] I think such properties should be counted as *extrinsic* at least in the sense that is most relevant to debates about dispositions because these properties are not shared by qualititative duplicates, nor do they plausibly supervene upon categorical bases.

There are two ways in which such *haecceitistic* properties might come into play with dispositions. First, some dispositions might involve particular other objects in the specification of R, S or C. For example, some fans of extrinsic dispositions have held that a key might now be disposed to open a particular lock – call it Lockley – but that it might lose this disposition, not by suffering any intrinsic changes itself, but instead simply because Lockley rusts.[30] Second, there might be circumstances in which something or someone bears a special relation to a particular item, but not to its intrinsic duplicates. E.g., a wizard might use rubberizing spells to protect his favorite goblet, while caring naught for intrinsically indistinguishable goblets.[31] Some people might be inclined, therefore, to say that the wizard's favorite goblet has a disposition (to thud if struck) not possessed by its duplicates.

My inclination regarding both sorts of cases is to remain quite conservative, and attribute dispositions only involving qualitative properties, and not ones involving *haecceities*. I grant

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[29] See e.g., Yablo (1999), Sider (1996).
[30] Similar examples are advanced by Shoemaker (1980) and McKitrick (2003).
[31] Thanks to an anonymous reviewer for suggesting this example.

that the key has the disposition to open any clean lock of type L (including Lockley) but not any rusted lock of type L. And I grant that all the duplicate goblets have the disposition to thud if struck while (C_1) under the loving attention of a protective wizard and also the disposition to break if struck while (C_2) not under such loving attention. I also grant that, at different times and for different items, we're much more likely to pay special attention to some dispositions than we are to others, and we may colloquially express these dispositions using proper names. This gives me the resources to make sense of ordinary shifts in our talk about the dispositions of keys and goblets, even while I deny that the key loses any *dispositions* merely as Lockley rusts, and even while I deny that the beloved goblet has any *dispositions* its duplicates lack.

This conservative way of attributing dispositions preserves the ideas that so long as a thing does not change internally it will keep its dispositions, and that dispositions might supervene on intrinsic categorical bases. This allows for as many dispositions as we need to make our metaphysical theories work, so I think nothing significant is lost by denying the label "disposition" to conditional statuses involving particular *haecceities* like Lockley or the beloved goblet. However, I recognize that other theorists may have more liberal inclinations, and may wish to stick with my Extrinsic Proposal in order to draw *haecceitistic* dispositions into the fold.

Let us take stock. In this section, we've considered several reasons to want an account of dispositions that ensures dispositions are intrinsic. I have given such an Intrinsic Proposal, and argued that it can successfully account for the cases that have troubled other approaches, and that despite its conservatism it attributes satisfyingly many dispositions. The Extrinsic and Intrinsic Proposals are each well-defined. There's one class of phenomena – call them *E-dispositions* – correctly captured by the Extrinsic Proposal, and a smaller class – call them *I-dispositions* – correctly captured by the Intrinsic Proposal. Some happy pluralists might embrace these as two sorts of dispositions, each theoretically interesting in its own right.

Other readers might be swayed by the arguments for or against extrinsic dispositions, and hold that only one of these proposals correctly captures what we really mean by 'dispositions', while the other captures some related, but slightly larger or smaller class of phenomena. My own inclination is to think that I-dispositions better capture what metaphysicians meant by 'disposition' and that I-dispositions are more theoretically interesting. So my preferred proposal is my Intrinsic Proposal. However, I want to emphasize that my Extrinsic Proposal offers fans of extrinsic dispositions a perfectly serviceable conditional analysis that gets around many problems faced by other analyses – it just failed to capture quite what I find to be the most intuitive and theoretically useful sense of "dispositions". Such theorists can thus gain much from the three-parameter view of dispositions proposed in this paper, even while they favor my Extrinsic Proposal over the intrinsic version that I prefer.

7. Objections and Replies.

It is a virtue of (both versions of) my proposal that I countenance multiple dispositions that an object might simultaneously have, like a vase's simultaneous dispositions to break if struck while exposed and to thud if struck while protected by the packer or a benevolent wizard. One might worry, however, that my analysis countenances *too many* dispositions: a different possible disposition for virtually any combination of stimulus, response, and auspicious circumstances.[32] I grant that we don't usually *think about* the full plurality of dispositions that objects might be said to have. Instead we focus upon those stimuli, responses, and circumstances

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[32] This includes dispositions where C takes the trivially unrestrictive setting: "any type of circumstance, whatsoever". Dispositions involving trivially unrestrictive settings for C are circumstance-insensitive in that something that possess the disposition to R when S *in any circumstance whatsoever* will produce R if it receives S, regardless of the surrounding circumstances. Most circumstance-insensitive dispositions that are actually instantiated will either have an incredibly restrictive S that builds in the restrictions that we usually count upon C to place (much as in alternative #1 in section 4), or else an incredibly liberal R that allows for many strange responses in strange circumstances (much as in alternative #2). While I countenance circumstance-insensitive dispositions among the many dispositions that are instantiated, I think that ordinary people typically refer to circumstance-sensitive dispositions instead.

that are especially relevant to us. But the fact that we don't usually think about, say, my laptop's disposition to float if placed in seawater in an intense magnetic field doesn't mean that my laptop doesn't have this disposition. Furthermore, since we might conceivably take interest in this disposition someday, it is good that our theory countenances it. The same holds for all the other strange dispositions my theory countenances. So, I'm happy to countenance a rich plurality of dispositions.

If, for some reason, you want to be more conservative in what dispositions you countenance, then you owe us a principled criterion that distinguishes the "real" dispositions from all the "fake" ones. If you could deliver such a principled criterion, then I could easily conjoin it to my *analysans* to deliver the comparatively sparse census of dispositions that you want. My proposal can easily be amended to make it however conservative you have principled reason to want it to be, so you shouldn't worry about its countenancing too many dispositions.

There is a close analogy between this and the debate over *unrestricted composition*, the view that, for any objects whatsoever, there is a whole object with those objects as its parts.[33] Unrestricted composition countenances many surprising objects like one composed of your left pinky and the Eiffel tower. Still, many theorists despair of finding a principled criterion distinguishing the "real" objects from fake-seeming ones like this, so they conclude that, in fact, all these objects exist, even if we never refer to most of them.[34] This effectively replaces an ontological question ("When do several objects compose a whole?") with a semantic question ("Which out of all the extremely many whole objects are the ones that our words and concepts typically refer to?") We can't avoid the question of distinguishing between "good" and "bad"

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[33] For a good overview see Horgan and Potrč (2008, esp. Ch. 2).
[34] While this paper tentatively accepts an unrestricted view of dispositions, it remains neutral regarding unrestricted composition. Many people are attracted towards nominalism about properties but not objects. If property nominalism allows us to posit large numbers of dispositions at little intuitive or ontological cost, one might plausibly embrace an unrestricted view of dispositions while holding a more restricted (or even nihilist) view of object composition.

objects but we can view this as a semantic rather than ontological question. One strong reason to prefer the semantic option is that it seems inevitable that there will be vagueness, indeterminacy, and/or arbitrariness in any proposed way of demarcating "good" objects from "bad", and *semantic vagueness*, *semantic indeterminacy*, and *semantic arbitrariness* are easier for many to stomach than *ontological vagueness*, *ontological indeterminacy*, or *ontological arbitrariness* (Horgan and Potrč 2008).

My acceptance of an unrestricted plurality of dispositions yields a parallel shift from an ontological question ("Which S-R-C triples correspond to dispositions?") to a semantic question ("Which out of all the extremely many dispositions are the ones that our words and concepts typically refer to?"). This too yields the advantage of allowing us to draw upon only palatable (semantic rather than ontological) sorts of vagueness, indeterminacy, and/or arbitrariness. Having palatable ways of handling these is especially important in the case of dispositions, as S, R and especially C are typically not specified in much detail in our ordinary talk of dispositions, and hence are quite unlikely to be crisply demarcated.

Ultimately, we would want our best theory of dispositions to link up to our best naturalized semantic theory. Our theory of dispositions will tell us which parameters (S, R and C) need to be specified to specify a particular disposition, and our naturalized semantic theory will tell us how various mental and contextual factors work together to determine which settings these parameters take in particular occasions where we talk or think about dispositions. For example, when the packer says the vase is disposed to break if struck, a naturalized semantic theory would tell us (on the basis of the packer's mind and background context) precisely what sorts of striking, breaking, and auspicious circumstances are involved in the disposition the packer attributes to the vase; while our conditional analysis of dispositions would tell us (on the basis of what conditionals are true of the vase) whether or not the vase has that disposition.

The simplest semantic views are 'descriptivist' views that hold that, when someone attributes a particular disposition, the relevant settings for S, R, and C are determined by descriptions held somewhere (perhaps tacitly) in that person's mind.[35] In section 3, I argued that the packer and vandal might have in mind identical descriptions for S and R, but different descriptions for C, and concluded that they might therefore be referring to dispositions with the same S and R, but different auspicious circumstances. This argument presumed that, when the packer has in mind descriptions for S, R, and C, descriptivism is (at least probably) right in saying that these descriptions correspond to the characteristic stimulus, response, and auspicious circumstances for the disposition the packer refers to.

This loose affiliation with descriptivism might seem objectionable. Descriptivist views of reference have largely fallen out of favor, and for good reason: many people seem not to possess descriptions that are sufficiently detailed to fix reference (e.g. Kripke's Feynmann case, Putnam's Elm/Beech case), and sometimes the descriptions people have in mind seem to be *incorrect*, fitting something other than the actual referent (e.g., Kripke's Gödel/Schmidt case, Burge's arthritis case).[36] Such concerns should give us pause about descriptivism about our reference to dispositions. We should at least consider abandoning descriptivism in favor of 'externalist' semantic theories that allow reference-determining roles for local experts (e.g., Putnam 1973, Burge 1979), for causal chains leading people to associate information with particular words or concepts (e.g., Evans 1973, Boyd 1988, Fodor 1990), and/or for histories of successful usage (e.g., Millikan 1984, Dretske 1988).

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[35] Descriptivist views have been advocated by Russell (1905), Strawson (1950), Lewis (1984), and Jackson (1998).
[36] See Kripke (1972), Putnam (1973), Burge (1979).

It is beyond the scope of this paper to decide which semantic theory is best. Instead, I want to make just three points. First, one might worry[37] that the strong arguments against descriptivism bode poorly for any hopes of coming up with a general analysis of dispositions. If descriptivism were true, then we might hope that a successful analysis would simply restate the inner descriptions we tacitly associate with disposition terms. But if descriptivism is wrong, and disposition terms are like natural-kind terms in that their referents are determined by external causal connections rather than internal descriptions, then it's much less obvious that we can reasonably hope for an analysis of dispositions. This objection is partly correct: threats to descriptivism are indeed threats to the possibility of finding a *purely conceptual* analysis that breaks folk concepts of dispositions into component concepts. However, threats to descriptivism needn't be threats to other, more empirical, sorts of analysis. For example, it is now fashionable to reject descriptivism about natural kind terms like 'water', but many people still accept "X is water iff X is H_2O" as a good analysis of water, at least in the sense that it provides a necessarily true biconditional which allows us to replace talk of 'water' with talk in more fundamental terms. In much the same way, even if descriptivism turns out to be false, we might still hope to find a similar biconditional linking talk of dispositions to talk of conditionals.[38] Indeed, I think my proposal provides just such an analysis.[39]

Second, until we are given positive reason to think that either the packer's or the vandal's inner descriptions would have to be incorrect, we should take the fact that their inner descriptions

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[37] Thanks to an anonymous referee for voicing this worry.

[38] I remain neutral regarding whether conditionals are, in some sense, more *fundamental* than dispositions. One attractive view takes a Humean manifold of categorical properties to be basic, defines laws and conditionals in terms of this manifold, and then defines dispositions in terms of conditionals. One coherent alternative reverses this order of dependence, taking some brute dispositions to be basic, and defining laws and conditionals in terms of those. A third option would be to take none of these to be ontologically prior, and instead view dispositions, conditionals, and laws as a family of interdefinable modal notions. The aim of my "analysis" is just to state a true biconditional capturing the relation between dispositions and conditionals, not to sort out their order of ontological dependence.

[39] I also remain officially neutral regarding the question of whether my proposed analysis can be confirmed just by careful reflection upon folk concepts, or whether it is instead empirically supported by our experience with various dispositions and conditionals. For this paper, it's enough just to find an analysis that is true.

might agree on S and R but not C to weigh in favor of the conclusion that they might refer to dispositions that are alike with respect to S and R but not C, which is all my above argument needed. My acceptance of this descriptivist-sounding claim is fully compatible with the plausible anti-descriptivist claims that external factors contribute to reference-determination (especially in cases where inner descriptions are lacking) and that our inner descriptions are sometimes incorrect. So, my argument did not rely on descriptivism in any problematic way.

Third, once we do have an agreed-upon semantic theory, we will be in a better position to evaluate the conditional analysis of dispositions I've proposed. One might worry that my analysis actually works *too well* – that it is flexible enough to accommodate any case, and therefore fails adequately to explain any of them. I may accommodate any inference from a disposition-ascription to a conditional by saying that, for the person making the inference, the circumstances in question seemed to be auspicious ones for that disposition. And I may accommodate any refusal to infer a conditional by saying that, for the person in question, the circumstances in question seemed inauspicious. These explanations might seem suspiciously easy for me to manufacture. And so they would be, if there weren't other ways for us to get confirmation that what my account suggests is indeed what's going on.

To get such confirmation, we may begin by probing the descriptions of stimuli, responses, and circumstances that a speaker has in mind (much as we imagined with the vandal and the packer above). If those descriptions suggest particular settings for S, R, and C, then we have *prima facie* reason to think that that speaker is referring to a disposition with that S, R, and C. Semantic externalists hold that certain external factors might trump this *prima facie* reason (as for example Thales' causal interaction with H_2O presumably trumped his intuitive belief that water was an indivisible element). If that's what our best semantic theories end up saying, then that's how we should interpret people's disposition-ascriptions, so we'll need to remain open to

the possibility, e.g., that certain circumstances might count as auspicious for certain of our disposition-attributions, not because we have precise descriptions of those circumstances in mind, but instead because we have an appropriate history of causal interaction with those sorts of circumstances. For example, semantic externalism seems especially plausible regarding our saying the caterpillar is disposed to grow into a butterfly: few of us have any hope of fully specifying the auspicious circumstances for this transformation, and yet we're quite certain we can correctly attribute such a disposition to a caterpillar, so whatever is setting this parameter for us apparently must be something external, and not just an internal description. Regardless of whether we end up accepting descriptivism or some form of externalism, our interpretations of people's disposition-attributions will be heavily constrained by our best naturalized semantic theory, so it is not simply a foregone conclusion that my three-factor proposal will be able to accommodate every possible case. But our intuitive consideration of examples above (in section 5) does give us strong initial reason to think that the interface between my proposed account and our best semantic theories will work out nicely.

Hence, I conclude that we should accept that dispositions are individuated not just by their characteristic stimuli (S) and responses (R), but also by their auspicious circumstances (C). This third parameter allows us to accommodate cases in which two people (like the packer and the vandal) have in mind different dispositions involving the same S and R. This third parameter also enables us to provide a new analysis linking dispositions to subjunctive conditionals. In many cases where other analyses have failed, a three-parameter approach provides satisfying answers.

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